



ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION



Solutions of worksheet-1

SUBJECT – MATHEMATICS

1st term

Chapter: Trigonometry

Class: XI

Topic: Trigonometric Ratios of associated angles

Date: 15.06.2020

Choose the correct option

(1 X 15= 15)

1. If $\tan \theta = x - \frac{1}{4x}$, then $\sec \theta - \tan \theta$ is equal to

(a) $-2x, \frac{1}{2x}$

(b) $-\frac{1}{2x}, 2x$

(c) $2x$

(d) $2x, \frac{1}{2x}$

2. If $\sec \theta = x + \frac{1}{4x}$, then $\sec \theta + \tan \theta =$

(a) $x, \frac{1}{x}$

(b) $2x, \frac{1}{2x}$

(c) $-2x, \frac{1}{2x}$

(d) $-\frac{1}{x}, x$

3. If $\frac{\pi}{2} < \theta < \frac{3\pi}{2}$, then $\sqrt{\frac{1 - \sin \theta}{1 + \sin \theta}}$ is equal to

(a) $\sec \theta - \tan \theta$

(b) $\sec \theta + \tan \theta$

(c) $\tan \theta - \sec \theta$

(d) none of these

4. If $\pi < \theta < 2\pi$, then $\sqrt{\frac{1 + \cos \theta}{1 - \cos \theta}}$ is equal to

(a) $\operatorname{cosec} \theta + \cot \theta$

(b) $\operatorname{cosec} \theta - \cot \theta$

(c) $-\operatorname{cosec} \theta + \cot \theta$

(d) $-\operatorname{cosec} \theta - \cot \theta$

5. The maximum value of $\sin \theta \cdot \cos \theta$ is –

a) $\frac{1}{2}$

b) 1

c) 2

d) ∞

6. If $\frac{\pi}{2} < \theta < \pi$, then $\sqrt{\frac{1 - \sin \theta}{1 + \sin \theta}} + \sqrt{\frac{1 + \sin \theta}{1 - \sin \theta}}$ is equal to
 (a) $2 \sec \theta$ (b) $-2 \sec \theta$ (c) $\sec \theta$ (d) $-\sec \theta$
7. If $\tan \theta = -\frac{4}{3}$, then the value of $\sin \theta + \cos \theta$ is -
 a) $\pm \frac{4}{5}$ b) $\pm \frac{3}{5}$ c) $\pm \frac{1}{5}$ d) $\frac{1}{5}$
8. If $\tan \theta + \sec \theta = \sqrt{3}$, $0 < \theta < \pi$, then θ is equal to
 (a) $\frac{5\pi}{6}$ (b) $\frac{2\pi}{3}$ (c) $\frac{\pi}{6}$ (d) $\frac{\pi}{3}$
9. If $\sin \theta = -\frac{1}{2}$, then $\theta = ?$
 a) 30° b) 120° c) 150° d) 210°
10. The value of $\cos(-1170^\circ) = ?$
 a) 1 b) -1 c) 0 d) $-1/2$
11. $\sin(\theta - 540^\circ) = ?$
 a) $\sin \theta$ b) $-\sin \theta$ c) $\cos \theta$ d) $-\cos \theta$
12. Value of $\cos(\frac{5\pi}{2} - \frac{19\pi}{3}) = ?$
 a) $\frac{\sqrt{3}}{2}$ b) $-\frac{\sqrt{3}}{2}$ c) $-\frac{1}{2}$ d) $\frac{1}{2}$
13. $\cos 24^\circ + \cos 55^\circ + \cos 125^\circ + \cos 204^\circ + \cos 300^\circ = ?$
 a) $\frac{\sqrt{3}}{2}$ b) $-\frac{\sqrt{3}}{2}$ c) $-\frac{1}{2}$ d) $\frac{1}{2}$
14. $\tan 181^\circ \tan 182^\circ \tan 183^\circ \cdots \tan 268^\circ \tan 269^\circ = ?$
 a) 1 b) 0 c) ∞ d) $\sqrt{3}$

15. Minimum value of $2^{(\sin \theta)^2} + 2^{(\cos \theta)^2}$ is -

- a) 1 b) $\sqrt{3}$ c) $\sqrt{2}$ d) $2\sqrt{2}$

1.a ; 2.b ; 3.c ; 4.d ; 5.a ; 6.b ; 7.c ; 8.c ; 9.d ;
10.c ; 11.b ; 12.a ; 13.d ; 14.a ; 15.d

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